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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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9629	7590	03/25/2005	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			HAN, JASON	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EX

Office Action Summary	Application No. 10/720,157	Applicant(s) YOU, DONG JAE	
	Examiner Jason M. Han	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☒ Claim(s) 26 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claim 26 is objected to because of the following informalities: Typographical error – please rewrite to read “plurality of supporters”. Appropriate correction is required.
3. Claim 40 is objected to because of the following informalities: Typographical error – “ires”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 5, 9-10, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ukai et al. (U.S. Patent 6254244).
5. With regards to Claim 1, Ukai discloses a backlight module including:
 - A liquid crystal display panel [Figure 2: (3)];
 - A plurality of fluorescent lamps/low-pressure mercury lamps [Figure 2: (6)]
formed below the LCD panel extending along a first direction at first fixed intervals along a second direction perpendicular to the first direction; [As

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defined by "The Authoritative Dictionary of IEEE Standard Terms (7th Ed.)", mercury lamps are a high intensity discharge (HID) lamp in which the major portion of the light is produced by radiation from mercury operating at a partial pressure in excess of 1.013×10^3 Pa (one atmosphere). Includes clear, phosphor-coated (mercury-fluorescent), and self-ballasted lamps.]

- A case [Figure 2: (9)];
 - A plurality of wires [Figure 2: (11)] attached to the case; and
 - Wire fixing plates [Figure 2: (7)].
6. With regards to Claim 2, Ukai discloses a light-scattering system [Figure 2: (5)] disposed formed between the liquid crystal display panel and the plurality of fluorescent lamps.
7. With regards to Claim 5, Ukai discloses a reflecting plate [Figure 2: (8)] formed between the plurality of fluorescent lamps and the case.
8. With regards to Claim 9, Ukai discloses the plurality of wires [Figure 2: (11)] formed between the plurality of lamps [Figure 2: (6)] and the case [Figure 2: (9)].
9. With regards to Claim 11, Ukai discloses the plurality of wires [Figures 1&2: (11)] extending along the first direction at first fixed intervals along the second direction.
10. With regards to Claim 25, Ukai discloses a plurality of supporters [Figure 2: (7)] disposed between the plurality of wires [Figure 2: (11)].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244) as applied to Claim 2 above, and further in view of Lee (U.S. Publication 2002/0044437).

12. With regards to Claim 3, Ukai discloses the claimed invention as cited above. In addition, Ukai teaches a diffusion plate [Figure 2: (5)], however, does not specifically teach an optical sheet.

Lee teaches a backlight assembly for a liquid crystal display device including a diffusion sheet [Figure 1: (5)] and an optical sheet [Figure 1: (8)].

It would have been obvious to one ordinarily skilled in the art at the time the invention was made to modify the backlight of Ukai to incorporate the optical sheet of Lee to further improve the luminance of the liquid crystal display panel by converging light diffused through the diffusion plate [see Lee: Page 1, Paragraph 12].

13. With regards to Claim 4, Ukai in view of Lee discloses the claimed invention as cited above. In addition, Lee teaches a plurality of supports [Figure 2: (60)] within a backlight module.

14. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244) as applied to Claim 1 above.

Ukai discloses the claimed invention as cited above. In addition, Ukai discloses the wires [Figure 2: (11)] being formed of a copper-based material [Column 12, Line 48],

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however, does not specifically teach the case and the wire fixing plates being made of the same material or of an aluminum-based material.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the case and wire fixing plates out of aluminum- or copper-based material, since it has been held to be within general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. In this case, both aluminum and copper are commonly known as materials with thermally conductive characteristics, which would further enhance heat dissipation and cooling of the system.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244) as applied to Claim 1 above, and further in view of Sanz (U.S. Patent 4129900).

Ukai discloses the claimed invention as cited above, but does not specifically teach the plurality of wires being fixed onto the wire fixing plates using one of solder and screws.

Sanz teaches, "The connection of wires to the contacts of the interior plates of the apparatus, which may be of brass, copper, aluminum, etc., can be carried out with FASTON or similar connectors or traditional screws or any other pressure system or, if preferred, soldered. The connections of the wires of the electric feed installation to the contacts of the miniracks will be carried out in accordance with the system which the manufacturer of the assembly prefers to use, either with screws or with pressure springs or parts, etc. [Column 1, Lines 59-68; underlines added by examiner for emphasis]"

It would have been obvious to one ordinarily skilled in the art at the time the invention was made to modify the backlight of Ukai to incorporate the wire connection means of Sanz in order to provide a more robust system wherein all the components are firmly secured and held in place.

16. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244) as applied to Claim 1 above.

Ukai discloses the claimed invention as cited above, but does not specifically teach the plurality of wires being formed between the LCD panel and the plurality of fluorescent lamps. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of wires between the LCD panel and fluorescent lamps, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires directly between would block some of the radiation from the light source and absorb heat away from the LCD panel.

17. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244) as applied to Claim 1 above.

Ukai discloses the claimed invention as cited above, but does not specifically teach the plurality of wires extending along the second direction at second fixed intervals along the first direction (re: Claim 10), nor extending along a third direction at a first angle within a range between 0 and 90 degrees with respect to the first direction (re: Claim 12). However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of wires to extend

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along a preferred direction, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction may better suit a desired heat conduction process. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

18. Claims 13-24 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244) as applied to Claim 1 above.

19. With regards to Claim 13, Ukai discloses the claimed invention as cited above. In addition, Ukai discloses a plurality of first wires [Figure 2: (11) on the left side] and a plurality of second wires [Figure 2: (11) on the right side]. However, Ukai does not specifically teach the plurality of first wires formed between the liquid crystal display panel and the plurality of fluorescent lamps (re: Claim 13), and the plurality of second wires formed between the plurality of fluorescent lamps and the case (re: Claim 13), nor

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first wires disposed between the LCD panel and lamps and the plurality of second wires disposed between the case and lamps, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the plurality of first and second wires around the plurality of fluorescent lamps ensures greater heat transfer. Regardless, the examiner considers such limitations a matter of obvious engineering

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decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

20. With regards to Claim 14, Ukai discloses the claimed invention as cited above. In addition, Ukai teaches the plurality of first wires and the plurality of second wires [Figure 2: (11)] extending along the first direction at first fixed intervals along the second direction.

21. With regards to Claim 15, Ukai discloses the claimed invention as cited above. In addition, Ukai teaches a plurality of supporters disposed between adjacent ones of the plurality of first and second wires [Figure 2: (7)].

22. With regard to Claims 16-17, Ukai discloses the claimed invention as cited above, but does not specifically teach the plurality of first wires and the plurality of second wires overlapping each other (re: Claim 16), nor the plurality of first wires and the plurality of second wires extending along a third direction at an angle within a range between 0 and about 90 degrees with respect to the first direction (re: Claim 17).

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction and in an overlapping manner would better suit a preferred heat conduction process. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

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23. With regards to Claim 18, Ukai discloses the claimed invention as cited above. In addition, Ukai teaches a plurality of supporters disposed between adjacent ones of the plurality of first and second wires [Figure 2: (7)].

24. With regards to Claim 19, Ukai discloses the claimed invention as cited above, but does not specifically teach the plurality of first wires extending along the first direction at first fixed intervals along the second direction and the plurality of second wires extending along the second direction at second fixed intervals along the first direction.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction at specific intervals, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction would better suit a preferred heat conduction process. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

25. With regards to Claim 20, Ukai discloses the claimed invention as cited above. In addition, Ukai teaches a plurality of supporters disposed between adjacent ones of the plurality of first and second wires [Figure 2: (7)].

26. With regards to Claims 21, Ukai discloses the claimed invention as cited above. In addition, Ukai discloses a first wire fixing plate [Figure 2: (7) on the left side] and a second wire fixing plate [Figure 2: (7) on the right side]. It would have been obvious to

one having ordinary skill in the art at the time the invention was made to have made duplicates of the first and second wire fixing plates, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In this case, multiple plates would increase the heat transfer via conduction through a greater surface area.

27. With regard to Claims 22-23, Ukai discloses the claimed invention as cited above, but does not specifically teach the plurality of first wires extending along a third direction at an angle within a range between about 0 and about 90 degrees with respect to the first direction (re: Claim 22), nor the plurality of second wires extending along a fourth direction at an angle within a range between about 0 and about 90 degrees with respect to the third direction (re: Claim 23).

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction would better suit a preferred heat conduction process within the system. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

28. With regards to Claim 24, Ukai discloses the claimed invention as cited above, but does not specifically teach the wire fixing plates being fixed on an exterior surface of the case. However, it would have been obvious to one having ordinary skill in the art at

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the time the invention was made to incorporate the wire fixing plates on the exterior surface of the case, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wire fixing plates on an exterior surface may enhance the heat transfer process via convection with the ambient outside temperature.

29. With regards to Claim 40, Ukai discloses the claimed invention as cited above, but does not specifically teach the diameters of the plurality of second wires being larger than the diameters of the plurality of first wires.

However, it would have been an obvious matter of design choice to incorporate the plurality of second wires with a larger diameter than the plurality of first wires, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). In this case, increasing the diameter of the second wires would increase the area, thereby enhancing the heat transfer via conduction.

30. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244) as applied to Claim 25 above.

Ukai discloses the claimed invention as cited above, but does not specifically teach the plurality of supporters have a conical shape. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the supporters into a conical shape, since it has been held to be within the general skill of a worker that mere change of form or shape of an invention involves only

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routine skill in the art. *Span-Deck Inc. c. Fab-Con, Inc.* (CA 8, 1982) 215USPQ 835. In this case, the shape does not contribute to the engineering decision for the support, whereby regardless of shape, the support serves the same function [e.g., support for the wires].

31. Claims 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244).

32. With regards to Claim 27, Ukai discloses a backlight module including:

- A liquid crystal display panel [Figure 2: (3)];
- A plurality of fluorescent lamps [Figure 2: (6)] formed below the LCD panel extending along a first direction at first fixed intervals along a second direction perpendicular to the first direction;
- A case [Figure 2: (9)];
- A first wire fixing plate [Figure 2: (7) on the left side] extending along the first direction and disposed adjacent to the case;
- A second wire fixing plate [Figure 2: (7) on the right side] extending along the second direction and disposed adjacent to the case;
- A first plurality of wires [Figure 2: (11) on the left side] attached to the first wire fixing plate;
- A second plurality of wires [Figure 2: (11) on the right side] attached to the second wire fixing plate; and
- A plurality of supporters [Figure 2: (7)] disposed between the first and second plurality of wires.

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Ukai does not specifically teach a plurality of first and second wire fixing plates. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a plurality of first and second wire fixing plates, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In this case, multiple plates would increase the heat transfer via conduction through a greater surface area.

In addition, Ukai does not specifically teach the first plurality of wires being formed between the liquid crystal display panel and the plurality of fluorescent lamps, and the second plurality of wires being formed between the plurality of fluorescent lamps and the case. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the plurality of first and second wires around the plurality of fluorescent lamps ensures greater heat transfer. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

33. With regard to Claims 28-29, Ukai discloses the claimed invention as cited above, but does not specifically teach the first plurality of wires extending along a third direction at an angle within a range between about 0 and about 90 degrees with respect to the first direction, the second plurality of wires extending along a fourth direction at an

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angle within a range between about 0 and about 90 degrees with respect to the third direction (re: Claim 28), nor the first plurality of wires being spaced apart by first intervals along the fourth direction and the second plurality of wires being spaced apart by second intervals along the third direction (re: Claim 29).

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction at specific intervals, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction would better suit a preferred heat conduction process within the system. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

34. With regards to Claim 30, Ukai discloses the claimed invention as cited above, but does not specifically teach the end portions of the first plurality of wires being connected to one of the plurality of first wire fixing plates and one of the plurality of second wire fixing plates, and end portions of the second plurality of wires being connected to one of the plurality of first wire fixing plates and one of the plurality of second wire fixing plates.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the end portions of the plurality of first and second wires to connect to one of the plurality of first wire fixing plates and one of the plurality of second wire fixing plates, since it has been held that rearranging parts of an

invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires in connection with both first and second wire fixing plates may better suit a preferred heat conduction process within the system. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires and wire fixing plates still serve the same function despite orientation and disposition.

35. With regard to Claims 31-32, Ukai discloses the claimed invention as cited above, but does not specifically teach the first plurality of wires extending along the second direction and being spaced apart by first intervals along the first direction, and the second plurality of wires extending along the first direction and being spaced apart by second intervals along the second direction (re: Claim 31), nor the first and second plurality of wires extending through sidewall portions of the case (re: Claim 32).

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction at specific intervals, or to extend the first and second plurality of wires through sidewall portions of the case, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction would better suit a preferred heat conduction process within the system, as well as extending the wires through sidewall portions of the case in order to increase heat transfer via conduction through the case (given that the case is of a thermally conductive material).

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36. Claims 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ukai et al. (U.S. Patent 6254244).

37. With regards to Claim 33, Ukai discloses a backlight module including:

- A liquid crystal display panel [Figure 2: (3)];
- A plurality of fluorescent lamps [Figure 2: (6)] formed below the LCD panel extending along a first direction at first fixed intervals along a second direction perpendicular to the first direction;
- A case [Figure 2: (9)];
- A plurality of wire fixing plates [Figure 2: (7)] extending along the first direction and disposed adjacent to the case; and
- A first [Figure 2: (11) on the left side] and second plurality of wires [Figure 2: (11) on the right side] attached to the plurality of wire fixing plates.

Ukai does not specifically teach the first plurality of wires being formed between the liquid crystal display panel and the plurality of fluorescent lamps, and the second plurality of wires being formed between the plurality of fluorescent lamps and the case. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the plurality of first and second wires around the plurality of fluorescent lamps ensures greater heat transfer. Regardless, the examiner considers such limitations a matter of

obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

38. With regards to Claim 34, Ukai discloses the claimed invention as cited above. In addition, Ukai teaches the first plurality of wires [Figure 2: (11) on the left side] being spaced apart by first intervals along the first direction, and the second plurality of wires [Figure 2: (11) on the right side] being spaced apart by second intervals along the first direction.

39. With regard to Claims 35-36, Ukai discloses the claimed invention as cited above, but does not teach the first plurality of wires being alternately disposed between the second plurality of wires (re: Claim 35), nor the first plurality of wires overlapping the second plurality of wires (re: Claim 36).

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction in an alternating pattern or overlapping one another, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction in an alternating and/or in an overlapping manner would better suit a preferred heat conduction process. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

40. With regard to Claims 37-38, Ukai discloses the claimed invention as cited above, but does not specifically teach the first plurality of wires extending along a third

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direction at a first angle within a range between about 0 and about 90 degrees with respect to the first direction, and the second plurality of wires extending along a fourth direction at a second angle within a range between about 0 and about 90 degrees with respect to the third direction (re: Claim 28), nor the first and second angles being substantially the same (re: Claim 29).

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend along a preferred direction at specific intervals, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, placing the wires along a certain direction would better suit a preferred heat conduction process within the system. Regardless, the examiner considers such limitations a matter of obvious engineering decision, whereby the plurality of wires still serve the same function despite orientation and disposition.

41. With regards to Claim 39, Ukai discloses the claimed invention as cited above, but does not specifically teach the first and second plurality of wires extending through sidewall portions of the case.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of first and second wires to extend through sidewall portions of the case, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, extending the wires through sidewall portions of the case could increase heat

transfer via conduction through the case (given that the case is of a thermally conductive material).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art pertinent to the current application, but are not considered exhaustive:

US Patent 5299038 to Hamada et al;

US Publication 2002/0113924 to Saito et al;

US Publication 2003/0123258 to Nitto et al;

US Patent 6747404 to Rha.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMH (3/9/2005)

A handwritten signature in black ink, appearing to read 'JAW', with a large, stylized loop at the end.

**JOHN ANTHONY WARD
PRIMARY EXAMINER**